WHAT IS CLAIMED IS:

1. An apparatus for detection of a frequency channel, comprising:

first and second devices for performing frequency conversion, each of the first and second frequency conversion devices having an input and an output, the first and second frequency conversion devices having respective first and second local oscillator inputs for respectively receiving first and second local oscillator signals, wherein the local oscillator signals are at a common local oscillator frequency and have a phase difference therebetween of precisely 90°;

a complex polyphase filter with first and second filter inputs connected to the outputs of the first and second frequency conversion devices, respectively, the polyphase filter including a plurality of filter outputs;

means connected to the filter outputs for detecting a signal strength; and

means for varying a phase angle of a signal at the output of at least one of the first and second frequency conversion devices.

2. The apparatus of Claim 1, wherein the varying means is for varying the phase angle by a multiple of 90° in one of a positive direction and a negative direction.

3. The apparatus of Claim 2, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

4. The apparatus of Claim 2, wherein the detecting means includes a level detector which compares a signal level at the filter outputs to a reference signal level.

5. The apparatus of Claim 1, wherein the varying means includes a switching means for connecting the first and second filter inputs to the outputs of the second and first frequency conversion devices, respectively.

6. The apparatus of Claim 5, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

7. The apparatus of Claim 5, wherein the detecting means includes a level detector which compares a signal level at the filter outputs to a reference signal level.

8. The apparatus of Claim 1, wherein the varying means includes a switching means for applying the first and second local oscillator signals to the second and first local oscillator inputs, respectively.

9. The apparatus of Claim 8, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

10. The apparatus of Claim 8, wherein the detecting means includes a level detector which compares a signal level at the filter outputs to a reference signal level.

11. The apparatus of Claim 1, wherein the first and second local oscillator signals are real and imaginary components, respectively, of a local oscillator output, and wherein the varying means includes means for inverting the second local oscillator signal.

12. The apparatus of Claim 11, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

13. The apparatus of Claim 11, wherein the detecting means includes a level detector which compares a signal level at the filter outputs to a reference signal level.

14. The apparatus of Claim 1, wherein the detecting means includes a level detector which compares a signal level at the filter outputs to a reference signal level.

15. The apparatus of Claim 14, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

16. The apparatus of Claim 1, wherein the varying means, the detecting means and the complex polyphase filter are cooperable for permitting RSSI measurement without changing the local oscillator frequency.

17. A method of detecting a free frequency channel among at least two frequency channels which have a common channel bandwidth, comprising:

performing complex conversion on an input signal in one of the frequency channels to produce a complex signal having two signal components at an intermediate frequency which is an integer multiple of the common channel bandwidth;

interchanging the two signal components of the complex signal;

measuring a signal strength associated with a complex channel-filtered version of the interchanged signal components; and

comparing the measured signal strength to a reference signal strength.

18. The method of Claim 17, including executing said performing, interchanging and measuring steps in a period of time other than during transmission of a useful communication signal.

19. The method of Claim 18, including executing said performing, interchanging and measuring steps after each of a plurality of useful communication signal transmissions, and storing the measured signal strengths to produce a quality map that is updated to include another measured signal strength after each of the useful communication signal transmissions.

20. The method of Claim 17, including executing said performing, interchanging and measuring steps after each of a plurality of useful communication signal transmissions, and storing the measured signal strengths to produce a quality map that is updated to include another measured signal strength after each of the useful communication signal transmissions.